

STACKABLE COOLER

FIELD OF THE INVENTION

5 The present invention relates to a stackable cooler, and more particularly to a stackable cooler for thermal isolation of frozen and refrigerated food items for use with a grocery cart.

BACKGROUND OF THE INVENTION

10 Shopping for groceries, including frozen and refrigerated foods, is a time-consuming task. Refrigerated items removed from a grocer's refrigerators will immediately begin to warm due to the higher ambient temperature. The longer a refrigerated item is exposed to warm air, the more heat it will absorb, and the warming, thawing, and melting of refrigerated products can be accelerated when ambient temperatures are high, such as in warm climates and especially during summer months. Thawing or heating of refrigerated items can lead to spoilage of the item's contents and possibly spilled contents. Due to time constraints or the layout of the supermarket, shoppers often must collect refrigerated items long before checkout, with the potential of extended exposure to ambient air. Thermal isolation of the refrigerated items will maintain the items intended lower temperature. A temporary portable cooler that can accompany the shopper can thermally isolate selected items and maintain their intended temperatures.

20 U.S. Patent No. 5,533,361 discloses a cooler for retaining food items in a refrigerated condition within a grocery cart. The insulated grocery cart cooler comprises a flexible insulated container with a flexible top web, flexible bottom webs and flexible side webs that are parallel. Pocket webs are coupled to the interior surface of the side webs for each to receive a gel pack of flexible construction containing a freezable gel.

25 U.S. Patent No. 5,598,943 discloses a container for carrying grocery bags in automobiles. The container and removable basket are large enough to contain two standard grocery bags standing upright next to each other along with cooler packs when it is closed.

30 U.S. Patent No. 5,024,359 discloses a bicycle cooler that is mountable to the head and handlebar intersection of a conventional bicycle. A heavy-duty insulated cooler has an attachment assembly with a pair of arm supports and a foot support to mate with a portion of the bicycle.

Accordingly, a need exists for a stackable cooler that can be easily transported through a supermarket, such as by a shopping cart, that will thermally isolate and minimize the rate at which frozen and refrigerated items increase in temperature.

SUMMARY OF THE INVENTION

The present invention relates to a portable cooler, such as for use within a grocery store or a food retailer establishment. A preferred embodiment of a first stackable cooler has a container member with a bottom and sides that are configured for enclosing and insulating a container space, which is preferably sized to contain at least one and up to four pint containers of ice cream. The container defines an opening dimensioned for removably and insulatingly receiving products into the container space. One or more hooks are supportively associated with the container member for hooking to a support structure, such as a cart, with the container member hanging therefrom. The hook and container member are configured for placing the stackable cooler in a nested association with a second and third coolers that are of similar construction to the first stackable cooler, having container members and hooks.

The hooks and container member of the first cooler are configured for placing this cooler in a stacked and nested association with the second and third coolers. In the nested association, the container member of the first cooler is nested through the opening to the container space of the second cooler, while nestingly receiving the container member of the third cooler through the opening to the container space of the first container member. When nested, the bottom of the first cooler container member is preferably received within the opening and container space of the second container member.

A stop member preferably extends radially from the first cooler container opening for limiting the reception into the second container member when placed in the nested association. The container members are preferably tapered, narrowing from top to bottom between an upper portion axially near the opening and the bottom. The stop member can comprise the upper portion or can have a stop ledge for abutting the second cooler container member.

The first cooler container member of the preferred embodiment has an axial height measured from the opening to the bottom at the outside of the container member. At least about one third of this axial height of the first cooler is preferably received in the second cooler container member in the nested association. More preferably, at least about one half of this axial height is received therein.

The hook or hooks of the preferred first cooler extend axially above the opening in a direction opposite from the bottom. The hooks of this embodiment have a hooked end disposed opposite or distally from the first container member, and can be configured such that in the nested association the hooked end of the first cooler is disposed
5 above the hook of the second cooler. The opening can have a space to receive at least a portion of the hook of the third cooler in the nested association.

A lid is preferably associated with the container member for movement between a closed position and an open position. In the closed position, the lid substantially closes the opening and substantially blocks airflow therethrough. In the open position, the lid
10 uncovers the opening, the lid being configured and positioned for avoiding interference with the second and third cooler in the nested association. The preferred lid comprises a flexible flap.

In one preferred embodiment, at least one of the bottom and sides has a double wall for insulating the container space. The sides can have a first wall portion and a second
15 wall portion. The first wall portion can have a first viewable appearance and can be detachably connected with the second wall portion for enclosing the container space. In this manner, the first wall portion can be replaced with another first wall portion that has a different viewable appearance.

In another embodiment, the cooler has at least one side wall outer portion that
20 is hingedly connected to the remaining portions of the container member which can allow a user to change the outward appearance of the container member.

In an embodiment in which the side walls have at least a double-walled portion with inner and outer walls, an opening for receiving a sheet can be defined between the inner and outer walls therebetween, such as in a pocket. The outer wall can be translucent
25 or transparent for viewing the sheet therein. Also, the sides can be made with a translucent or transparent portion for viewing the contents of the container space.

The container space can have a first wall portion that is at least partially separable from a second wall portion and replaceable to change the appearance of the container. The connected first and second wall portions can form an insulating double wall
30 around the container space. In one embodiment, the first wall portion includes an outer wall, and the second wall portion includes an inner wall disposed within the outer wall where the first and second wall portions are connected. In one embodiment, the first wall portion includes at least a portion of the side walls and can be made detachable from the second wall

portion to expose an opening to the container space. The first wall portion connected with the second wall portion can optionally be replaceable with another wall portion. Advantageously, the other wall portion that replaces the first wall portion can have a different appearance than the first wall portion. The appearance can include, for instance, an advertisement viewable from outside the container space with the lid closed.

The invention thus provides a container that, in a preferred embodiment, can be conveniently provided in a stack near a refrigerated aisle in a supermarket and used by consumers to keep their products cool.

BRIEF DESCRIPTIONS OF THE DRAWINGS

Fig. 1 is a front perspective view of a preferred embodiment of stacked coolers constructed according to the invention;

Fig. 2 is a side perspective view thereof in stacked and nested association;

Fig. 3 is a cross-sectional view of another embodiment of the cooler;

Fig. 4 is a front perspective view of an inner container member thereof;

Fig. 5 is a front perspective view of an outer container member thereof;

Fig. 6 is an inside perspective view of a removable wall of another embodiment of the invention;

Fig. 7 is a perspective view of a portion of a container member for attachment with the wall of Fig. 6;

Fig. 8 is a side view of another embodiment of a cooler constructed according to the invention;

Fig. 9 is a front perspective view of another embodiment of a cooler with a hinged portion of a container wall; and

Figs. 10 and 11 are top and side views, respectively, of another embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Fig. 1, a preferred embodiment of a stackable cooler 50 includes a first container member 51 with walls that enclose a container space 57. The container member 51 and container space 57 are preferably configured for thermally insulating any products contained therein. The walls of the container member 51 include a bottom 52 and sides 53-56, which cooperatively enclose the container space 57. The container member 51 also defines a first opening 61 leading to the container space 57. The opening 61 of the

embodiment shown is dimensioned for removably receiving the products, as well as for removably receiving other coolers in the container space 61, as described below.

In this embodiment, the bottom 52 is generally rectangular and the sides 53-56 are generally rectilinear, preferably trapezoidal. The sides 53-56 are tapered in width from top to bottom and also inwardly with respect to the container space 57. The taper of the container member 51 is selected to allow the cooler 50 to be nested with other coolers of similar configuration. Thus, bottom 52 is preferably smaller in planform than the first opening 61 to allow passage of the bottom 52 and a portion of the tapered sides 53-56 through the opening 61 of another similarly dimensioned container member, such as of container members 81,101. Alternative container members and their walls can have other suitable shapes, including square, conical, oval, and round shapes, and the taper of the container member can alternatively have a constant taper, as in Fig. 1, or other nestable taper configurations, including a varying smooth or stepped taper of varying horizontal cross-section.

As shown in Fig. 2, the first cooler 50 is in a stacked and nested association with second and third coolers 100,80. The first container member 51 is configured and dimensioned for reception within second opening 86 and container space, preferably with the bottom 52 and at least a portion of the sides 53-56 of the first container member 51 received therein. In the nested association, the first container member 51 can also nestingly receive a third container member 101 through the opening 61 and in the first container space 57. Additional coolers can be nested within the upper most cooler 100 through opening 161 in nested and stacked association. Cooler 80 can also be nested below into an additional cooler through the opening of the additional cooler.

The preferred taper of the container member 51 to allow the nesting extends between an upper portion 30 axially adjacent to the opening 61 and the bottom 52, such that the bottom 52 is narrower than the upper portion 30. The tapered sides 53-56 can have a generally smooth and continuous taper or can be stepped to provide for the nested reception of one container portion in another. In the embodiment of Fig. 2, the sides 53-56 and the bottom 52 are disposed preferably at an angle α that is greater than about 90° , more preferably greater than about 95° , and most preferably greater than about 100° . Angle α is preferably less than about 150° , more preferably less than about 120° , still more preferably less than about 110° . In a preferred embodiment, angle α is about between 100° and 105° .

Bottom 52 and sides 53-56 are preferably constructed from a material and with a configuration to provide sufficient strength and rigidity to substantially maintain their shape

during nesting and also when hung and full of products. Preferably bottom 52 and sides 53-56 are configured to provide the container member 51 as a substantially rigid structure to prevent its collapsing. Suitable materials for the container member 51 include high-density polyethylene and polystyrene. The material can be opaque or alternatively translucent or transparent. In one embodiment, the material of construction is translucent or transparent at least in areas selected to allow viewing of the contents in the container space 57. One preferred container member 51 has unitarily formed, single-walled sides 53-56 and bottom 52, while other embodiments have sides 53-56 and bottom 52 that are double walled, such as to improve insulation of the container space 57.

As shown in Figs. 2, 7, and 8, the stackable cooler 50 can include hanging members for attaching the container member 51 to a support structure, such as a shopping cart, so that the container member 51 hangs therefrom. Preferably, hanging members include hooks 58,59 that are preferably associated with the container member 51, for hooking to the support structure. The hooks 58,59 can be affixed to the container member 51, preferably to one of the sides 53-56, such as by adhesives or fasteners 66. Hooks 58,59 are preferably connected to one of the longer sides 54,56, but can be connected to one or more of the short sides 53,55 and/or long sides 54,56. In the embodiment shown, the hooks 58,59 are attached to one of the sides 53-56 in pairs evenly spaced along one of the sides 53-56. Preferably the hooks 58,59 are made of a resilient metal, such as stainless steel, but can additionally or alternatively be made of other materials suitable for securely hanging the container member 51 to a support structure, such as a hard plastic. Hooks 58,59 can be coated to increase friction or prevent scratching, and some of the preferable coatings include vinyl or rubber.

The hooks 58,59 in the preferred embodiment have a first terminus portion 68 configured to hook to the grating structure of a shopping cart. The terminus portion 68 is thus preferably located distally from the container member 51. The hooks 58,59 also have a second terminus portion 88 that is located proximally to the container member 51, preferably attached thereto, but which may be of unitary construction therewith. The first terminus portion 68 preferably points generally downward. The first and the second terminus portions 68,88 cooperatively define an opening 5 therebetween and are connected by an intermediate portion 60 that is preferably curved. The opening 5 is dimensioned for receiving a portion of the support structure, such as a bar of the shopping cart, so that the intermediate hook portion 60 can support a full cooler member 51 hanging therefrom.

The hooks 58,59 extend vertically above the opening 61 of the container member 51 in a direction opposite from the bottom 52. In the nested association, the

uppermost portions of hooks 58,59 and the first terminus portion 68 thereof are disposed at a sufficient height to clear or prevent interference with the hooked end of terminus portion 68 of the cooler 80 nested below. The hooks 58,59 preferably extend above the container opening by less than about the height of the container members, and preferably by less than about half the height of the container member. The hooks 58,59 and/or the container members preferably have nesting features, such as concavities 62 to nestingly receive portions of the hooks 58,59, such as the bases thereof at the second terminus portion 88. Other parts of the hooks, such as the first termini, may be nestingly associated with each other or with other parts of the coolers.

In other embodiments, the coolers are stacked with differing or alternating hook orientations for each subsequently stacked cooler. In this arrangement, the first set of hooks faces one direction and the subsequent set of hooks faces another direction or even the opposite direction, while allowing the coolers to nest substantially horizontally.

In the embodiments shown in Figs. 3-5, container member 70 has an inner container wall member 71 and an outer container wall member 72 joined at connecting surfaces 74 and 75. The inner and outer wall members 71,72 can be abutting, but preferably define an interwall space 73 therebetween. The space 73 can allow for greater insulating properties by trapping a layer of gas, such as air, between the container space 57 and the exterior of the container member 70. The space 73 can be filled with insulating materials, such as polyurethane foam or argon, to enhance the insulating properties of the container member 70. The inner and outer wall members 71,72 of this embodiment can include connectors, such as a series of pegs 76 and holes 77 positioned along respective connecting surfaces 74,75, as shown in Figs. 4 and 5. The connectors can be configured for releasably or permanently holding the wall members 72,71 together, and are sufficiently strong to remain attached with the container space 57 full.

In an embodiment with separable container wall members 71,72, the appearance of the cooler 70 can be altered by exchanging one of the wall members with another wall member of a different appearance. Preferably, the outer wall member 72 is exchanged with a similarly configured outer wall member that has a different outer appearance. This interchangeability can allow for changing and replacing advertisements or logos on the outer container wall 72. The preferred container walls 71,72 are each formed with four sides and a bottom of unitary construction, but can be assembled from different pieces and in different shapes. Preferably, the sides, bottom, and portions thereof are associated to limit or substantially prevent airflow into and out of the container space.

In an alternative embodiment, a first outer container wall member with three sides can be formed unitarily with each other and with the bottom. A second outer container wall member with one side can be formed that is removable and replaceable from the first outer container wall member for changing the viewable appearance of the container member.

5 The container can have fasteners or other connecting members positioned along mutual connecting surfaces between the first and second outer wall members for fastening the first and second outer wall members with the inner wall members. In other embodiments, any combination of portions of the wall members can be made removable from the remaining portion of the container member. For example, a container member can be formed with both
10 long container sides formed integrally with the bottom, while the short container sides are removable or at least partially separable therefrom.

In another embodiment, shown in Figs. 6 and 7, container member 28 comprises a removable side 31. The removable side 31 can include an inner wall member 32 and an outer wall member 33 that can define a space 34. The side 31 can be attached to the
15 container member 28 by connecting members such as pegs 35 and holes 36 or fasteners located on the mutual contact area 39 between side 31 and container member 28. In this embodiment, the hooks 58,59 are preferably located on an opposite side of the container member 28 from the removable side 31, although they can be on any portion of the cooler in alternative embodiments.

20 The preferred removable side 31 can comprise a transparent or translucent outer wall 33 to allow viewing of an outer facing surface of the inner wall 32 or the contents of the interwall space 34. The removable side 31 can be exchanged for similarly configured sides with a different viewable appearance. As shown in Fig. 6, side 31 can comprise a sheet 41 that can be placed between the inner 32 and outer wall 33. The sheet can display
25 advertisements or logos and is preferably viewable from the outside of container member 28. This arrangement can allow the grocer to display advertisements, specials, services and upcoming events. The sheet 41 can be substantially the same size or smaller than the side 31. Additionally, in the embodiment of Fig. 6, the removed portion of the sidewall reveals a side opening to the container space, which is covered when the removed portion is replaced with
30 the same or another portion.

In the embodiment shown in Fig. 9, a hinged portion 44 of the outer wall of container member 29 is hingedly connected to the container member 29 by hinge 43 to allow a user to gain access to an interwall space 45 between the inner wall and outer wall. The hinged portion 44 is preferably kept shut by clasp 42 or other suitable member. Suitable

hinges 43 include, for example, pinned hinges and living hinges, or other types. The hinged portion 44 is shown as a part of one of the side walls, but may alternatively be another part of the container member 29. An alternative hinged portion may include a portion extending along more than one side or may comprise an entire side with the hinge disposed at a corner of the container portion, between side walls. Preferably, the hinged portion 44 opens to reveal the region between the inner and outer container walls, facilitating replacement of a sheet therein that can be seen from the outside of the container member 27, such as through a window in the hinged portion. The inserted sheet can preferably be slid into the interwall space in an area beyond that facing the hinged portion 44.

Referring again to Fig. 2, the container member 51 preferably includes a stop member 99 to limit the reception of one cooler into the next in the nested association. The stop member 99 preferably extends radially with respect to the first container opening 61 for limiting the reception of the first container member 51 into the second container member 81 when placed in the nesting association. The stop member 99 of this embodiment has a lower face 21 that abuts an upper face 22 of the lower container member 81. The stop member 99 preferably extends and protrudes from at least one of the sides 53-56. Preferably, a pair of stop members 99 is located on each of the lateral sides 53,55 of the container member 51, which are preferably shorter than the front and back sides 54,56 thereof, and are evenly spaced along the width of the sides 53,55. The preferred height of the stop member 99 is selected so that about one half or less of an axial height 19 of the container 51 protrudes above the adjacent container 81 in which it is nested, as shown in Fig. 2. More preferably the height of the stop member 99 is selected so that about one third or less of the axial height 19 protrudes above the adjacent container 81, more preferably less than about one fourth or less of the axial height 19 protrudes, and most preferably less than about one eighth and more than about one tenth of the container member 51 protrudes above the adjacent container member 81 in which it is nested. In other embodiments, stop members 99 are disposed singularly or multiply on all four sides 53-56. Shorter or taller stop members 99 may be used depending upon the desired stacking association. Alternatively, the stop member 99 can circumscribe the container opening 61. In other embodiments the stop member can comprise a circumferential lip or edge capable of abutting a portion of the upper face 22 of a vertically inferior adjacent container. In the embodiment of Fig. 6, the stop member 84 comprises a portion of the outer wall of the container member that is larger than the container opening to stop insertion therein. Preferably, however, the stop member is configured to reduce or

substantially prevent jamming of the container member in an adjacent container member in which it is nestingly received.

As shown in Fig. 2, the upper portions 30 of the container members 81,51 have handle portions 24,26, respectively, for assisting a user to grasp and handle the cooler 50. Handle portions 24,26 can be formed as recesses in the upper portion 30 of container member 51, as recesses in the upper portion 30 of container member 81, or as protrusions that are preferably formed on opposite sides of the container member and centered upon each short side 53,55. The handle portions 24,26 preferably are laterally accessible by a user from the lateral sides 53,55 while the coolers 80,50,100 are in the nested association. In alternative embodiments, handle portions 24,26 can be formed on the longer sides 56,54.

As shown in Fig. 8, side wall 25 has a lateral face 23 from which a lifting lip 18 extends, which is configured as a handle portion for assisting a user to grasp and handle the cooler 50. Lifting lip 18 is preferably formed as a continuous lip circumscribing the opening 61. Lip 18 can alternatively be formed as a discontinuous protrusion extending radially outward at preselected locations, and preferably proximal to the upper face 22 of the lateral face 23.

Referring again to Fig. 2, the container space 57 is preferably sized and configured to hold supermarket refrigerated products. Preferably, the container space 57 is configured and dimensioned to hold between one pint-size ice cream container and four quart-size ice cream containers. Preferably, between two and four pint-size or between one and two quart-size ice cream containers can be contained therein with the lid closed. In one embodiment, the container space 57 can hold one or two six-packs of beer cans, such as 12 or 16 oz cans. The container member 51 is preferably between about 5 and 10 inches high and is preferably between about 4 and 9 inches deep in a vertical, axial direction. The base is preferably between about 6 to 9 inches in length and between about 5 and 8 inches wide. Larger and smaller embodiments are possible depending upon the intended use. Other sizes can be configured to hold at least one and up to four one-half gallon containers of ice cream.

Referring to Fig. 1, the preferred stackable cooler 50 has a lid 8 associated with the container member 51 for movement between a closed position and an open position. For clarity, the lids 8 of the nested coolers are not shown in Fig. 2. The lid 8 of each cooler can comprise a flap 6, which in the closed position is dimensioned to cover the opening 61 so as to minimize or substantially block air flow into and from the container space 57. The flap 6 is shown in the open position in Fig. 1. By minimizing air flow, the exposure of the contents of the container member 51 to the atmosphere will be minimized and will retard the

warming of the contents. The flap 6 is preferably constructed of a flexible material, such as rubber, or can be constructed of vinyl, neoprene, or other suitable material. Alternatively, the flap can be of generally rigid construction to substantially prevent flexing during normal use or stacking, but this lid preferably is hinged or movably mounted to the container portion to
5 move out of a position in which it would interfere with another cooler nested with the container portion to which the lid is hinged.

The flap 6 can pivot freely between the open and closed positions by way of hinge 4, which in the embodiment shown is a living hinge made of the material of the remainder of the lid 8. The flap 6 is preferably maintained in the closed position by resalable
10 fastener, such as a snap and button or a hook and loop type fastener, such as Velcro®. One half 5 of the fastener is preferably located on the distal end of the flap 6 while the other half 7 is located in a corresponding area of the upper face 22. In the open position the flap 6 is configured to avoid interference with the vertically neighboring coolers while stacked in the nested association. The flap 6 can alternatively be hinged from the lateral face 23 of
15 container member 51. Preferably, the flap 6 is arranged to swing clear of the upper face 22 so as to allow the stacked coolers 80,50,100 to nest substantially level while in the nested association.

Referring to Figs. 10 and 11, another embodiment of a cooler has a lid 90 that includes at least two hinged lid panels 92 that are pivotably connected, preferably by a hinge
20 94, which extends generally along the longest width of the lid 90 or in another direction. A lid hinge 96 connects one of the lid panels 92, preferably along one of the long sides of the container portion 98. In the open position, the lid panels 92 can be folded against each other and against the side of the container portion 98. Magnets 91 or other releasable fastening members are preferably used to retain the lid panels in the desired positions. The hinge 94 or
25 bottom facing edges of the lid panels 92 can be configured as a stop member to limit the extent of nesting with adjacent containers. The side walls shown has a generally vertical a lower tapered and sloped portion 93, and a generally vertical portion 95 above the portion of the container member that is to nest in an adjacent cooler. The height of the vertical portion is preferably about half of the narrow width of the top, such that the vertical portion
30 substantially matches the narrow width of each of the lid panels 92, or the longest of the lid panels 92.

While illustrative embodiments of the invention are disclosed herein, it will be appreciated that numerous modifications and other embodiments can be devised by those

skilled in the art. For example, inventive coolers can be made without hooks but with replaceable wall portions or with transparent walls to display advertising or other viewable material within the walls,. Therefore, it will be understood that the appended claims are intended to cover all such modifications and embodiments that come within the spirit and
5 scope of the present invention.